

### REMARKS

Applicants have amended claims 1-15, 17, 22, and 23 to replace the term "catalyst" with "catalyst system" to promote clarity. Applicants have also amended claim 23 to correct a minor deficiency. No new matter has been added by the amendment.

**The amendment should be entered as they raise no new issues that will require further consideration or search and also do not touch the merits of the application within the meaning of 37 C.F.R. § 1.116(b).**

Claims 1-15, 17, 22, and 23 are now pending. Reconsideration of the application, as amended, is requested in view of the remarks below.

### Claim Objection

Claim 23 is objected to as it depends from a cancelled claim, i.e., claim 20. Applicants have rectified this deficiency.

### Rejection under 35 U.S.C. § 102(e)

Claims 1-3, 7, 17, and 22 are rejected as being anticipated by Noda et al., US Patent 6,350,416 (Noda). Claim 1, the only independent claim, will be discussed first.

Claim 1 covers an exhaust gas purifying catalyst system which includes (1) a first catalyst component containing a refractory inorganic oxide carrying a platinum family metal, a nitrogen oxide adsorbent, and a hydrocarbon adsorbent; and (2) a second catalyst component for the purification of nitrogen oxide. Relative to the flow direction of the exhaust gas, the first catalyst component is disposed on the upstream side and the second catalyst component is disposed on the downstream side. Thus, the first catalyst component is located **upstream** of the second catalyst component.

Noda discloses three catalyst systems:

The first catalyst system includes (1) an adsorbent having an ion-containing zeolite and a noble metal-containing inorganic oxide, and (2) a loaded carrier containing a catalyst for purifying harmful substances. The adsorbent and the loaded carrier correspond to the first and

second catalysts recited in claim 1, respectively. In this catalyst system, the adsorbent is located **downstream** of the loaded carrier. In contrast, in the catalyst system of claim 1, the first catalyst component (corresponding to the adsorbent) is disposed **upstream** of the second catalyst component (corresponding to the loaded carrier). Clearly, the catalyst system of claim 1 is different from Noda's first catalyst system.

Noda's second catalyst system includes (1) an adsorbent having a zeolite containing an ion and a noble metal, and (2) a loaded carrier containing a catalyst for purifying harmful substances. As this system **does not contain any inorganic oxide**, it is clearly different from the catalyst system of claim 1, which **requires an inorganic oxide**.

Noda's third catalyst system includes (1) an adsorbent having an ion-containing zeolite, (2) a noble metal-containing inorganic oxide, and (3) a loaded carrier containing a catalyst for purifying harmful substances. The inorganic oxide is located downstream of the adsorbent, and the adsorbent is located downstream of the loaded carrier. The composition of the adsorbent and the inorganic oxide, in combination, is the same as that of the first catalyst component recited in claim 1. In other words, this combination corresponds to the first catalyst recited in claim 1. The loaded carrier in Noda's catalyst system corresponds to the second catalyst recited in claim 1. As the combination is located **downstream** of the loaded carrier, Noda's catalyst system is clearly different from the catalyst system of claim 1, in which the first catalyst component (corresponding to the combination) is located **upstream** of the second catalyst component (corresponding to the loaded carrier).

As discussed above, all three catalyst systems disclosed in Noda are different from the catalyst system of claim 1. In other words, Noda does not anticipate claim 1.

For the reasons set forth above, claims 2, 3, 7, 17, and 22, dependent from claim 1, are also not anticipated by Noda.

#### Rejection under 35 U.S.C. § 103

The Examiner rejects claims 4-6 and 8-15 for obviousness. More specifically, he rejects claims 4-6, 8, and 9 in view of Noda and Kurokawa et al., U.S. Patent 5,958,826 (Kurokawa);

claims 10-12, 14, and 15 in view of Noda and Horiuchi et al., US Patent 5,911,961 (Horiuchi); and claim 13 in view of Noda and Farrauto et al., US Patent 5,804,155 (Farrauto).

The rejected claims, i.e., claims 4-6 and 8-15, all depend from claim 1. The patentability of these claims resides at least in part in the unique arrangement of a first catalyst component and a second catalyst component described in claim 1, i.e., the first catalyst component is disposed **upstream** of the second catalyst component relative to the direction of the exhaust gas flow.

Noda's design leads to protection of a hydrocarbon adsorbent from thermal deterioration, which is achieved by absorbing the heat from exhaust gas with a loaded carrier before the gas reaches the adsorbent (column 2, lines 32-38 and column 10, lines 48-51). This design dictates a special arrangement of the catalyst components for all three catalyst systems disclosed in Noda, i.e., the adsorbent (corresponding to the first catalyst component recited in claim 1) is disposed **downstream** of the carrier (corresponding to the second catalyst component recited in claim 1). This arrangement is opposite to that of the catalyst system of claim 1. In other words, Noda teaches away from the design of the catalyst system of claim 1, 4-6, and 8-15.

None of Kurokawa, Horiuchi, and Farrauto cures this deficiency.

Kurokawa discloses an exhaust gas purifying catalyst system in which a layer containing a barium or lanthanum is disposed on the top of another layer containing an agent for absorbing water. Referring to footnotes 2 and 3 in the response to the first office action (mailed November 24, 2003; see Exhibit A attached hereto), Kurokawa clearly does not teach or suggest an upstream/downstream arrangement of the two layers relative to the gas flow.

Horiuchi teaches a catalyst system which contains a first catalyst component, i.e., a platinum or palladium-carrying first refractory inorganic oxide powder and a metal oxide; and a second catalyst component, i.e., a second refractory inorganic oxide powder and platinum. The catalyst system is prepared by (i) mixing the elements of the first catalyst component and an aqueous solution, and drying the resultant wet mixture; (ii) mixing the above-obtained dry mixture with the second catalyst component, and wet-pulverizing the resultant mixture to give a slurry; and (iii) coating the slurry onto a catalyst carrier. See column 6, lines 40-67. The first

and second components are mixed together and are inseparable. Clearly, Horiuchi also does not teach or suggest an upstream/downstream arrangement of the two catalyst components.

Farrauto discloses a composition containing at least two catalyst components, i.e., a neutral zeolite or basic zeolite and a platinum family metal. All these components are mixed, calcined, and coated as one layer on a carrier. See column 7, lines 10-15. Clearly, Farrauto also does not teach or suggest an upstream/downstream arrangement of the two catalyst components.

As Noda teaches away from a unique feature of the catalyst system of claim 1 and none of Kurokawa, Horiuchi, and Farrauto cures this deficiency, a combination of Noda and any of Kurokawa, Horiuchi, and Farrauto does not render the catalyst system of claim 1 obvious. Claims 4-6, 8, and 9, dependent from claim 1, are also not rendered obvious by the cited references.

#### CONCLUSION

For the reasons set forth above, Applicants submit that the claims 1-15, 17, 22, and 23 as pending, define subject matter that is novel and nonobvious over the prior art. Applicants ask that all claims be allowed.

Enclosed is a \$950 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: \_\_\_\_\_

9-14-04

Y. Rocky Tsao  
Y. Rocky Tsao  
Attorney for Applicants  
Reg. No. 34,053

Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110-2804  
Telephone: (617) 542-5070  
Facsimile: (617) 542-8906